

I claim:

1. A gravel packing method, comprising:
 - running in a packer and a screen assembly supported by said packer;
 - inserting an assembly of a crossover that supports a wash pipe at least in part into said packer;
 - providing a seat on said crossover to accept an obstructing object for setting the packer,
 - positioning the seat so that pressure can be built up on the obstructing object to a predetermined level without any effect from downhole pressure acting below the object on the seat.
2. The method of claim 1, comprising:
 - providing at least one gravel outlet port in said crossover;
 - selectively obstructing said gravel outlet port from downhole pressure when setting said packer.
3. The method of claim 2, comprising:
 - locating said seat further downhole on said crossover than said gravel outlet port.
4. The method of claim 1, comprising:
 - providing a clearance in the bore of the packer as it is set;
 - allowing a fluid column to act through said clearance during setting of the packer to exert pressure on the formation below the packer for resisting cave-ins into the wellbore.
5. A gravel packing method, comprising:
 - running in a packer and a screen assembly supported by said packer;
 - inserting an assembly of a crossover that supports a wash pipe at least in part into said packer;
 - moving said crossover from a first position for setting the packer to a second position after said packer is set,
 - depositing gravel outside said screen using circulation through said crossover, when said crossover is in said second position,
 - maintaining said second position of said crossover after said depositing;

reversing excess gravel after said depositing by flowing fluid in a direction opposite to that during said depositing but isolating said reverse flow from passing through said screen.

6. The method of claim 5, comprising:

supporting said crossover in said second position so that ports are open to provide fluid communication, in a first path, between inside said wash pipe and an annular space above said packer.

7. The method of claim 6, comprising:

supporting said crossover in said second position so that gravel ports are open to provide fluid communication, in a second path, through said crossover and to an annular space between said wash pipe and said screen and out to the outside of said screen where gravel may be deposited.

8. The method of claim 7, comprising:

providing unidirectional flow access, with a first check valve, from inside said wash pipe to said annular space between said wash pipe and said screen to facilitate said reversing.

9. The method of claim 8, comprising:

preventing flow down said wash pipe toward said screen with a second check valve that permits flow through said wash pipe coming from within said screen.

10. The method of claim 6, comprising:

providing a shutoff valve in said wash pipe to selectively close it while said crossover is in said second position;

performing a squeeze operation with said shutoff valve in said closed position.

11. The method of claim 10, comprising:

raising said crossover from said second position and lowering it back to said second position to open said shutoff valve to facilitate circulation.

12. The method of claim 11, comprising:

raising said crossover from said second position until a gravel outlet is above the packer;

closing said shutoff valve by said raising;

reverse flowing fluid into said gravel outlet to remove gravel to the surface through tubing connected to said crossover.

13. The method of claim 9, comprising:

providing a shutoff valve in said wash pipe to selectively close it while said crossover is in said second position;

performing a squeeze operation with said shutoff valve in said closed position.

14. The method of claim 13, comprising:

raising said crossover from said second position and lowering it back to said second position to open said shutoff valve to facilitate circulation.

15. The method of claim 12, comprising:

raising said crossover from said second position until a gravel outlet is above the packer;

closing said shutoff valve by said raising;

reverse flowing fluid into said gravel outlet to remove gravel to the surface through tubing connected to said crossover.